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| 10/735,894 | 12/16/2003 | Jung-hoe Kim | 1901.1345 | 5705 |

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| EXAMINER |
|---|
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 10/735,894 | KIM ET AL. |
| | Examiner | Art Unit | |
| | DOUGLAS C. GODBOLD | 2626 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>01 March 2010</u>.
2a)☐ This action is **FINAL**.          2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-3,6,9,12-15,18 and 19* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *1-3* is/are allowed.
6)☒ Claim(s) *6,9,12-15,18 and 19* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some *  c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

## DETAILED ACTION

1.      This Office Action is in response to correspondence filed March 1, 2010 in

reference to application 10/735,894. Claims 1-3, 6, 9, 12-15, and 18-19 are pending

and have been examined.

### *Continued Examination Under 37 CFR 1.114*

2.      A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March

1, 2010 has been entered.

### *Response to Amendment*

3.      The amendment file March 1, 2010 has been accepted and considered in this

office action. Claims 1, 6, 9, and 12 have been amended, and claims 18 and 19 have

been added.

### *Response to Arguments*

4.      Applicant's arguments, see Remarks, filed March 1, 2010, with respect to claims

1-3 and 12-15 have been fully considered and are persuasive. The prior art rejection of

claims 1-3 and 12-15 has been withdrawn.

5.      Applicant's arguments filed March 1, 2010 with respect to claims 6 and 9 have

been fully considered but they are not persuasive.


6.      Applicant argues first on page 7-8, that Park does not teach the limitations of

coding k-bit length symbols from the MSB's of k number of samples. The examiner

disagrees.  While the applicant seems to argue that K is representative of all the

quantized samples in a frame, the claim only requires K quantized samples. There is no

claimed requirement that K is the total number of samples.  Thus Park can fairly be read

on the claim where k=4.  Thus the MSB remaining of every 4 samples are coded.

Although the claims are interpreted in light of the specification, limitations from the

specification are not read into the claims.  See *In re Van Geuns*, 988 F.2d 1181, 26

USPQ2d 1057 (Fed. Cir. 1993).


7.      Applicant further argues, see Remarks pages 8-9, that Park does not teach

"decoding audio data in units of symbols in consideration of a bit range allowed in each

of the plurality of layers..."  The examiner respectfully disagrees. The applicant points

to column 7 line 49- column 8 line 11 as the "symbols" in Park.  Furthermore the

applicant argues that Park does not code certain bands, instead of decoding by

symbols.  However column 7 lines 20-35 specifically discuss coding in order from MSB

to LSB. The LSBs may be left out of the final bitstream and thus not decoded at the

other end, based on bit-rate requirements.  Park decodes in units of symbols because

there are 2 symbols for each layer.  Thus Park meets the limitations of the claim.

## Claim Rejections - 35 USC § 101

8.      35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

9.      Claims 9 and 12-15 are rejected under 35 U.S.C. 101 because the claimed

invention is directed to non-statutory subject matter.  Claims 9 and 12-15 are directed

towards "apparatus" comprising various units.  However when interpreted in light of the

specification, see page 1 and 2, one of ordinary skill in the art would appreciate that the

coding standards and methods being improved upon in this invention can be

implemented in computer code. Because no hardware is specifically claim, the claim

may be interpreted as "software per se."  Therefore claims 9 and 12-15 are rejected as

being non-statutory.

## Claim Rejections - 35 USC § 102

10.     The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

11.     Claims 6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Park

(US Patent 6,438,525).

12.     Consider 6, Park teaches a method for decoding audio data that is coded in a

layered structure, with scalability, comprising:

using a processor for:

inputting audio signal and extracting audio data from said audio signal (figure 4,

audio data input);

differential-decoding additional information containing scale factor information

and coding model information based on scale band information and coding band

information corresponding to a first layer (Col. 4, lines 37-48, wherein the quantization

step size information is the scale factor information, and the quantization bit information

is the coding model information. Also Col. 3, lines 18-21, describe the order of creation

of the layers.);

Huffman-decoding audio data in groups of K quantized samples, each group

including k-bit sized symbols in order from a symbol' formed with MSB bits down to a

symbol formed with LSB bits and obtaining quantized samples by referring to the coding

model information (Col. 4, lines 37- 48 and 64-65, wherein the symbols are represented

by bits (Col. 4, lines 49-50).);

inversely quantizing the obtained quantized samples by referring to the scale

factor information (inverse quantizing portion 410 from Fig. 4 and Col. 13, lines 5-7);

inversely MDCT transforming the inversely quantized samples (frequency/time

mapping portion 420 from Fig. 4 and Col. 13, lines 7-10. Note that Park does not

specifically mention using the inverse MDCT in transforming the signal from frequency

to the temporal domain, however it would have been inherent to one having ordinary

skill in the art at the time the invention was made to have used the same process for

decoding as for encoding but inversely, in which case the inventor used the MDCT

transform for the time/frequency mapping portion for converting the data from the

temporal domain into the frequency domain (Col. 10, lines 62-65, and Col. 13, lines 34-

38).); and

repeatedly performing the steps with increasing the ordinal number of the layer

one by one every time, until decoding for a predetermined plurality of layers is finished

(Col. 13, lines 31-34),

wherein the Huffman-decoding of audio data comprises:

decoding audio data in units of symbols in consideration of bit range allowed in a

plurality of layers corresponding to the audio data, in order from a symbol formed with

MSB bits down to a symbol formed with LSB bits (Col. 13, lines 14-30, wherein the units

of symbols are represented by bits. Column 9 lines 4-59 discuss that each of the layers

have a different bit rates, and the bits are packed in a way to fit within this bit rate.  Line

59 specifically refers to a "bit quality allowance"); and

obtaining quantized samples from a bit plane on which decoded symbols are

arranged (Col. 13, lines 18-20, wherein Col. 7, lines 50-65 illustrate the arrangement of

bits or bit plane used for the encoding, and Col. 8, lines 2-11 describe the arrangement

of the bit patterns (symbols) for encoding.),

wherein in decoding audio data, a 4*K bit plane formed with decoded symbols is

obtained, (Col. 13, lines 18-20, wherein Col. 7, lines 50-65 illustrate the arrangement of

bits or bit plane (4*K) used for the encoding. For this example bit plane, the number of

quantized samples (K) is 8, and the symbols are represented as bits.).


13.     Consider claim 9, Park teaches an apparatus for decoding audio data that is

coded in a layered structure, with scalability, comprising:

an unpacking unit which decodes additional information containing scale factor

information and coding model information based on scale band information and coding

band information corresponding to a first layer, and by referring to the coding model

information, Huffman-decodes audio data in groups of K quantized samples each group

including K-bit sized symbols in order from a symbol formed with MSB bits down to a

symbol formed with LSB bits and obtaining quantized samples (bitstream analyzing

portion 400 from Fig. 4, and Col. 4, lines 37-50 and lines 64-65, wherein the

quantization step size information is the scale factor information, and the quantization

bit information is the coding model information, also the units of symbols are

represented by bits.);

an inverse quantization unit which inversely quantizes the obtained quantized

samples by referring to the scale factor information (inverse quantizing portion 410 from

Fig. 4, and Col. 4, lines 37-48); and

an inverse transformation unit which inverse-transforms the inversely quantized

samples (frequency/time mapping portion 420 from Fig. 4, and Col. 4, lines 37-48),

wherein the unpacking unit decodes audio data in units of symbols in

consideration of a bit range allowed in each of the plurality of layers corresponding to

the audio data, in order from a symbol formed with MSB bits down to a symbol formed

with LSB bits, and obtains quantized samples from a bit plane on which decoded

symbols are arranged (Col. 12 line 67 to Col. 13 line 5, and Col. 13, lines 11- 20,

wherein the units of symbols are the bitstreams which are composed of the bit

sequences obtained from the bit plane as shown in Col. 7, lines 51-65. Column 9 lines

4-59 discuss that each of the layers have a different bit rates, and the bits are packed in

a way to fit within this bit rate.  Line 59 specifically refers to a "bit quality allowance"),

and

> wherein the unpacking unit obtains a 4*K bit plane formed with decoded symbols

(Col. 7, lines 49-65, 4*8 bit plane).


14.     Consider claim 18, Park teaches a coding method comprising:

> using at least one processor for;

> inputting audio signal and extracting audio data from said audio signal (figure 4,

audio data input);

> slicing audio data so that sliced audio data corresponds to a plurality of layers

(Col. 6, lines 6-12);

> obtaining scale band information defining a scale factor for each of a plurality of

scale frequency bands and coding band information defining a coding model for a

plurality of coding frequency bands, the scale frequency bands and coding frequency

bands corresponding to the plurality of layers (Col. 6, lines 1-6 and Col. 3, lines 39-42,

wherein the quantization step size information is the scale factor information, and the quantization bit information is the coding model information); and

coding additional information containing scale factor information and coding model information based on scale band information and coding band information corresponding to a first layer (Col. 6, lines 1-6 and Col. 3, lines 39-42, wherein the quantization step size information is the scale factor information, and the quantization bit information is the coding model information);

obtaining quantized samples by quantizing audio data corresponding to the first layer with reference to the scale factor information (Col. 12, lines 15-19~ wherein the step size information is the scale factor information, and Col. 6, lines 21-36);

Huffman coding the obtained plurality of quantized samples in units of symbols in order from a symbol formed with most significant bits (MSB) down to a symbol formed with least significant bits (LSB) by referring to the coding model information (Col. 6, lines 1-12, wherein the units of symbols are represented by the bit sequences, also Col. 11, lines 3-14 and Col. 3, lines 46-48); and

repeatedly performing the steps with increasing the ordinal number of the layers one by one every time, until coding for the plurality of layers is finished (Col. 6, lines 1-6).

15.     Consider claim 19, Park teaches a decoding method comprising:

using at least one processor for:

inputting audio signal and extracting audio data from said audio signal (figure 4, audio data input);

decoding additional information containing scale factor information defining a scale factor for each of a plurality of scale frequency bands and coding model information defining a coding model for a plurality of coding frequency bands, the scale frequency bands and coding frequency bands corresponding to each of plural layers (Col. 4, lines 37-48, wherein the quantization step size information is the scale factor information, and the quantization bit information is the coding model information. Also Col. 3, lines 18-21, describe the order of creation of the layers);

Huffman decoding audio data in units of symbols in order from a symbol formed with MSB bits down to a symbol formed with LSB bits and obtaining quantized samples by referring to the coding model information; inversely quantizing the obtained quantized samples by referring to the scale factor information (Col. 4, lines 37- 48 and 64-65, wherein the symbols are represented by bits (Col. 4, lines 49-50);

inversely MDCT transforming the inversely quantized samples (frequency/time mapping portion 420 from Fig. 4 and Col. 13, lines 7-10. Note that Park does not specifically mention using the inverse MDCT in transforming the signal from frequency to the temporal domain, however it would have been inherent to one having ordinary skill in the art at the time the invention was made to have used the same process for decoding as for encoding but inversely, in which case the inventor used the MDCT transform for the time/frequency mapping portion for converting the data from the

temporal domain into the frequency domain (Col. 10, lines 62-65, and Col. 13, lines 34-38)); and

repeatedly performing the steps with increasing the ordinal number of the layer one by one every time, until decoding for a predetermined plurality of the plural layers is finished (Col. 13, lines 31-34).

### Allowable Subject Matter

16.     Claims 1-3 are allowed. The following is an examiner's statement of reasons for allowance:

17.     The prior art of record, Park and Andrew, do to teach or suggest, alone or in combination, the limitations of "coding the K quantized samples in units of K-bit sized symbols in consideration of a bit range allowed in each of the plurality of layers corresponding to the samples in order from a symbol formed with MSB bits down to a symbol formed with LSB bits by obtaining a scalar value I corresponding to the symbol and performing Huffman-coding by referring to the K-bit binary data, the obtained scalar value, and a scalar value corresponding to a symbol higher than a current symbol on the bit plane." When combined with the other limitations of the claim.

18.     Claims 2 and 3 are dependent on and further limit claim 1 and therefore are allowable as well.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

19.    Claims 12-15 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action.

20.    Claim 12 contains similar allowable limitations as claim 1, and therefore would be allowable for similar reasons.

21.    Claims 13-15 would be allowable as they are dependent on and further limit claim 12

## Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS C. GODBOLD whose telephone number is (571)270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DCG

/Richemond  Dorvil/
Supervisory Patent Examiner, Art Unit 2626